

2022 2nd Asia-Pacific Conference on Communications Technology and Computer Science (ACCTCS 2022)

**Shenyang, China
25 – 27 February 2022**



**IEEE Catalog Number: CFP22Z87-POD
ISBN: 978-1-6654-0035-0**

**Copyright © 2022 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP22Z87-POD
ISBN (Print-On-Demand):	978-1-6654-0035-0
ISBN (Online):	978-1-6654-0034-3

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

2022 2nd Asia-Pacific Conference on Communications Technology and Computer Science (ACCTCS) **ACCTCS 2022**

Table of Contents

Preface	xvii
Organizing Committee	xviii
Reviewers	xix
Sponsors	xxi

2022 2nd Asia-Pacific Conference on Communications Technology and Computer Science (ACCTCS)

An Implementation of Centralized Controllers for Software-Defined Satellite Networks	1
<i>Yuke Ma (Beijing Jiaotong University, China), Jing Li (Beijing Jiaotong University, China), and Yunxue Huang (Beijing Jiaotong University, China)</i>	
Performance Comparisons of Machine-Learning-Based Intrusion Detection Algorithms Through KDD Dataset	6
<i>Qin Jiang (Beijing Jiaotong University, China) and Aleteng Tian (Beijing Jiaotong University, China)</i>	
Research on Obstacle Avoidance Strategy of Grid Workspace Based on Deep Reinforcement Learning	11
<i>Shuo Li (Chongqing University of Posts and Telecommunications, China), Jun Zhang (Chongqing University of Posts and Telecommunications, China), and Bin Zheng (Chongqing University of Posts and Telecommunications, China)</i>	
Research on Key Techniques of Text Recognition Under Strong Light Noise	16
<i>Yongpan Wang (Zhejiang University, China), Zhi Yu (Zhejiang University, China), Hangdi Xing (Zhejiang University, China), and Wei Wang (Zhejiang University, China)</i>	
Braille-to-Chinese Translation System Based on Optical Braille Recognition	22
<i>Zirui Shao (Zhejiang University, China), Zhi Yu (Zhejiang University, China), Yu Gu (Zhejiang University, China), and Wei Wang (Zhejiang University, China)</i>	

Research and Design of Network Information Security Attack and Defense Practical Training Platform Based on ThinkPHP Framework	27
<i>Shiming Ma (Nanning University, China)</i>	
A Music Recommendation Algorithm Based on Convolutional Neural Network Optimization	32
<i>Caiyu Su (Guangxi Vocational&Technical Institute of Industry, China), Jinri Wei (Guangxi Vocational&Technical Institute of Industry, China), Yi Mo (Guangxi Vocational&Technical Institute of Industry, China), and Shanyun Wu (Guangxi Vocational&Technical Institute of Industry, China)</i>	
Research on Video Captioning Method Based on Semantic Key Frame	39
<i>Yan Li (Yanbian University, China), Xu Cui (Yanbian University, China), and Xiaofeng Jin (Yanbian University, China)</i>	
Control Method of Rare Earth Extraction Process Based on Optimization Setting	45
<i>Jiang Song (East China Jiaotong University, China) and Zuxin Luo (East China Jiaotong University, China)</i>	
Disclosing Features and Characteristics of .COM Registrars' WHOIS Servers	52
<i>Yanan Cheng (Harbin Institute of Technology, China), Yali Liu (Harbin Institute of Technology, China), Guanhua Piao (Harbin Institute of Technology, China), Zhaoxin Zhang (Harbin Institute of Technology, China), Ning Li (Harbin Institute of Technology, China), and Mingyu Qiu (Harbin Institute of Technology, China)</i>	
Low Carbon and Economic Operation of Integrated Energy System Considering Electricity-Thermal Flexible Load	57
<i>Mingming Miao (Shenyang University of Technology, China), Zhe Chen (Shenyang University of Technology, China), and Tengda Han (State Grid Wuqiang County Power Supply Branch, China)</i>	
An Anomaly Detection Framework for Multi-Variate Time Series in Electric Vehicles	62
<i>Bailin Feng (Electronic Science and Technology of China, China) and Yu Ye (Electronic Science and Technology of China, China)</i>	
Optimal Allocation of Mixed Microgrid Capacity for wind-Hydrogen-Storage in a Certain area of Northeast China	67
<i>Pengfei Hou (Shenyang University of Technology, China) and Yun Teng (Shenyang University of Technology, China)</i>	
Design of bi-Power Reaching law Sliding Mode Controller Based on Exponential Observer	71
<i>Yingmin Yi (Xi'an University of Technology, China), Tingting Xu (Xi'an University of Technology, China), Yiwei Yuan (Xi'an University of Technology, China), Xianghong Xue (Xi'an University of Technology, China), and Yuxing Li (Xi'an University of Technology, China)</i>	
Fast Intra Mode Decision Algorithm of HEVC Based on Convolutional Neural Network	76
<i>Yingmin Yi (Xi'an University of Technology, China), Zhaoyang Zheng (Xi'an University of Technology, China), Yiwei Yuan (Xi'an University of Technology, China), Xianghong Xue (Xi'an University of Technology, China), and Yuxing Li (Xi'an University of Technology, China)</i>	
ZMap Performance in open DNS Resolver Discovery	80
<i>Liting Chang (Harbin Institute of Technology, China), Keyu Lu (Harbin Institute of Technology, China), Chao Li (Harbin Institute of Technology, China), and Zhaoxin Zhang (Harbin Institute of Technology, China)</i>	

Research on Inconsistent Consecutive DNS Responses from DNS Resolvers	86
<i>Lengwenting Li (Harbin Institute of Technology, China), Yang Liu (Harbin Institute of Technology, China), Keyu Lu (Harbin Institute of Technology, China), Chao Li (Harbin Institute of Technology, China), and Zhaoxin Zhang (Harbin Institute of Technology, China)</i>	
Optimal Dispatch of Power System with Energy Storage Considering Thermal Power Peaking Initiative and Demand Response	92
<i>Zilin Bi (Shenyang University of Technology, China) and Yun Teng (Shenyang University of Technology, China)</i>	
Energy Saving Programming of Distribution Network Considering High Permeability Renewable Energy Access	97
<i>Feng Wang (China Electric Power Research Institute Co., Ltd, China), Xujiang Chen (China Electric Power Research Institute Co., Ltd, China), Xiangxu Wang (China Electric Power Research Institute Co., Ltd, China), Shuwen Xu (China Electric Power Research Institute Co., Ltd, China), and Diantao Yan (China Electric Power Research Institute Co., Ltd, China)</i>	
An Improved Indoor Positioning Method Based on Received Signal Strengths	103
<i>Feng Wang (China Electric Power Research Institute Co., Ltd, China), Xing Zhang (China Electric Power Research Institute Co., Ltd, China), Weijie Zheng (China Electric Power Research Institute Co., Ltd, China), Yu Cheng (China Electric Power Research Institute Co., Ltd, China), Minli Gao (China Electric Power Research Institute Co., Ltd, China), and Diantao Yan (China Electric Power Research Institute Co., Ltd, China)</i>	
Design and Application of Container Terminal Operation and Maintenance System Based on Global Awareness	108
<i>Guozheng Zhang (CSIC Information Technology Co., Ltd, China)</i>	
Construction of Data Center Security System Based on Micro Isolation Under Zero Trust Architecture	113
<i>Lin Ni (National University of Defense Technology, China), Huanqing Cui (National University of Defense Technology, China), Mingqian Wang (National University of Defense Technology, China), Depeng Zhi (National University of Defense Technology, China), Kun Han (National University of Defense Technology, China), and Wangli Kou (National University of Defense Technology, China)</i>	
SEM-DCNet: A Self-Supervised Network for SEM Images Zonary Non-Linear Distortion Correction	117
<i>Hongyu Ge (Soochow University, China), Lirong Wang (Soochow University, China), and Ruobing Zhang (Chinese Academy of Sciences, China)</i>	
Towards Recoverability-Oriented Cloud Operations	122
<i>Daijiao Liu (Beijing University of Science & Technology, China) and Min Fu (Macquarie University, Australia)</i>	

Three-Dimensional Reconstruction and Geo-Positioning Accuracy Analysis Based on UAV Remote Sensing Images	127
<i>Yashan Hu (State Grid Jiangsu Electric Power Co., Ltd. Economic Research Institute, China), Nan Zhang (State Grid Jiangsu Electric Power Co., Ltd. Economic Research Institute, China), and Qiu Wang (State Grid Jiangsu Electric Power Co., Ltd. Economic Research Institute, China)</i>	
Research on the Intelligent Air-Defense Command and Decision System Based on Multi-agent	132
<i>Xiangzheng Jiang (Army Engineering University Shijiazhuang Campus, China), Weiyi Wu (Army Engineering University Shijiazhuang Campus, China), Tielin Liu (Army Engineering University Shijiazhuang Campus, China), and Lichao Hao (Army of 93786, China)</i>	
Bidirectional AC-DC Conversion Circuit Based on ADALM2000	137
<i>Haixia Yu (Dalian University of Technology, China), Yonghui Liu (Dalian University of Technology, China), and Wenbo Fu (Dalian University of Technology, China)</i>	
Classification of Landscape Pictures Based on Residual Network	140
<i>Peiyu Li (Chengdu University of Technology, China), Xinwei Yang (Chengdu University of Technology, China), and Xunlei Chen (Chengdu University of Technology, China)</i>	
Visual Communication Design of Image Multidimensional Visualization Fusion System Based on Machine Learning	144
<i>Xueyan Ni (Changchun University, China) and Ruhua Zhang (Changchun University, China)</i>	
Safety Exploration and Analysis of the Computer Data Based on the Block Chain Technology	148
<i>Bo Su (Southwest Branch of State Grid Corporation of China (SGCC), China), Chengjiang Liu (Southwest Branch of State Grid Corporation of China (SGCC), China), Yan Li (Southwest Branch of State Grid Corporation of China (SGCC), China), Qianqian Zhang (Southwest Branch of State Grid Corporation of China (SGCC), China), and Hong Zhang (Southwest Branch of State Grid Corporation of China (SGCC), China)</i>	
Discussion and Analysis on the Design of Electric Power Whole-Process Video Visualization Monitoring System	152
<i>Quan Zhou (Southwest Branch of State Grid Corporation of China (SGCC), China), Wenfeng Gan (Southwest Branch of State Grid Corporation of China (SGCC), China), Yixuan Chen (Southwest Branch of State Grid Corporation of China (SGCC), China), Bo Su (Southwest Branch of State Grid Corporation of China (SGCC), China), Chao Wang (Sichuan Keruide Power Communication Technology Corporation, China), and Ruoyi Chen (Sichuan Keruide Power Communication Technology Corporation, China)</i>	
A Study on the Power Dispatching Automation System Based on the Reactive Voltage Technology	156
<i>Chengjiang Liu (Southwest Branch of State Grid Corporation of China (SGCC), China), Hong Zhang (Southwest Branch of State Grid Corporation of China (SGCC), China), Qianqian Zhang (Southwest Branch of State Grid Corporation of China (SGCC), China), Bo Su (Southwest Branch of State Grid Corporation of China (SGCC), China), and Yan Li (Southwest Branch of State Grid Corporation of China (SGCC), China)</i>	

Research on Simulation Platform for Intelligent Warfare	160
<i>Qingjun Qu (National University of Defense Technology, China), Yiping Yao (National University of Defense Technology, China), Wenjie Tang (National University of Defense Technology, China), Feng Zhu (National University of Defense Technology, China), and Kai Chen (National University of Defense Technology, China)</i>	
Research on Intelligent Parameter Estimation Method of Distribution Equipment Fault Rate Model	164
<i>Hairong Luo (State Grid Ningxia Electric Power Co., Ltd., China), Bo Gao (State Grid Ningxia Electric Power Co., Ltd., China), Qingping Zhang (State Grid Ningxia Electric Power Co., Ltd., China), Shuang Zhang (State Grid Ningxia Electric Power Co., Ltd., China), Zhenhua Yan (State Grid Ningxia Electric Power Co., Ltd., China), Xuefeng Li (State Grid Ningxia Electric Power Co., Ltd., China), and Yongliang Li (State Grid Ningxia Electric Power Co., Ltd., China)</i>	
Reliability Analysis and Research of Distribution Network Based on Sequential Monte Carlo Method	169
<i>Hairong Luo (State Grid Ningxia Electric Power Co., Ltd., China), Yongliang Li (State Grid Ningxia Electric Power Co., Ltd., China), Xiuguang Li (State Grid Ningxia Electric Power Co., Ltd., China), Bo Gao (State Grid Ningxia Electric Power Co., Ltd., China), Zhenhua Yan (State Grid Ningxia Electric Power Co., Ltd., China), Qingping Zhang (State Grid Ningxia Electric Power Co., Ltd., China), and Xuefeng Li (State Grid Ningxia Electric Power Co., Ltd., China)</i>	
Design of Integrated Transaction Mode of Source Network Load Storage Interaction	173
<i>Yongliang Li (State Grid Ningxia Electric Power Co., Ltd., China), Hairong Luo (State Grid Ningxia Electric Power Co., Ltd., China), Xuwei Xia (State Grid Ningxia Electric Power Co., Ltd., China), and Gao Bo (State Grid Ningxia Electric Power Co., Ltd., China)</i>	
Simulation Study and Optimal Design of a new Microstrip Quasi-Yagi Antenna for WiFi Frequency Band Applications	178
<i>Dianyuan Li (Shandong Agricultural University, China), Aifeng Li (Shandong Agricultural University, China), Guangkuo Yang (Shandong Agricultural University, China), and Chongqi Xu (Shandong Agricultural University, China)</i>	
Facial Expression Recognition Method Based on SpResNet-ViT	182
<i>Weijun Gao (Lanzhou University of Technology, China), Lei Li (Lanzhou University of Technology, China), and Huayang Zhao (Lanzhou University of Technology, China)</i>	
Research on Relation Extraction Method of Contract Text Based on BERT	188
<i>Yuan Chang (Aerospace Science & Industry Network Information Development Co., Ltd, China), Lei Kong (Aerospace Science & Industry Network Information Development Co., Ltd, China), and Qinglei Meng (Aerospace Science & Industry Network Information Development Co., Ltd, China)</i>	
Application of Machine Learning Methods for Estimation Soil Bulk Density	194
<i>Zihao Huang (Fuzhou University, China), Shaofei Jin (Minjiang University, China), and Ku Wang (Minjiang University, China)</i>	

The Application of RBF Network in Teaching Management System	199
<i>Wudao Yang (Yunnan Minzu University, China) and Bihui Cheng (Yunnan Minzu University, China)</i>	
Design of Intelligent Quilt Based on Single Chip Microcomputer	203
<i>Yuhui Zhu (Xinyu College, China), Siyong Fu (Xinyu College, China), Bowen Chen (Xinyu College, China), Weitao He (Xinyu College, China), and Ruihan Long (Xinyu College, China)</i>	
Design of Intelligent Classified Trash can Based on STM32	208
<i>Fanbao Zeng (Xinyu University, China), Xinyu Hu (Xinyu University, China), Siyong Fu (Xinyu University, China), Xiang Shao (Xinyu University, China), and Minglong Peng (Xinyu University, China)</i>	
Scheduling and Routing Synthesis for Off-Chip Time-Triggered Communication	212
<i>Jingjing Wang (China Electronics Standardization Institute, China) and Jingru Su (China Electronics Standardization Institute, China)</i>	
An Intrusion Detection Method Integrating KNN and Transfer Extreme Learning Machine	221
<i>Kunpeng Wang (Harbin Engineering University, China) and Jingmei Li (Harbin Engineering University, China)</i>	
Design of License Plate Recognition System Based on FPGA	227
<i>Shuhang Chen (Chengdu University of Technology, China), Qishun Song (Chengdu University of Technology, China), Haibo Guo (Chengdu University of Technology, China), and Xuemei Li (Chengdu University of Technology, China)</i>	
Deep Graph Learning on Bipartite Observed Networks	232
<i>Qiang Wei (University of Electronic Science and Technology of China, China; National Key Laboratory of Science and Technology on Blind Signal Processing Chengdu, China)</i>	
Communication Mechanism for Multi-dimension Electric Power Transmission Line Monitoring Network	238
<i>Zhaoxiang Yuan (State Grid Economic and Technological Research Institute Co., Ltd., China), Zixiang Wang (State Grid Zhejiang Electric Power Co., Ltd. Research Institute, China), and Jiajia Han (State Grid Zhejiang Electric Power Co. Ltd. Research Institute, China)</i>	
Research of Transformer Fault Diagnosis Algorithm Based on Stacked Sparse Autocoding	243
<i>Yi Jiang (NARI Group Corporation/State Grid Electric Power Research Institute, China), Xu Yang (NARI Group Corporation/State Grid Electric Power Research Institute, China), Lin Cheng (NARI Group Corporation/State Grid Electric Power Research Institute, China), Jing Zhang (NARI Group Corporation/State Grid Electric Power Research Institute, China), and Chuanxian Luo (NARI Group Corporation/State Grid Electric Power Research Institute, China)</i>	
Investigation of Machine Learning Methods for Oxidation and Tensile Creep Properties of SiC/SiC Composites	247
<i>Zhiqin Chao (Northwestern Polytechnical University, China), Manyu Xiao (Northwestern Polytechnical University, China), and Xingang Luan (Northwestern Polytechnical University, China)</i>	

Performance Analysis of SWIPT Aided Satellite-Terrestrial Cooperative Network	252
<i>Zhen Li (Harbin Institute of Technology, China), Gang Wang (Harbin Institute of Technology, China), and Mingchuan Yang (Harbin Institute of Technology, China)</i>	
Research on Satellite Modeling and Real-Time Simulation Monitoring Based on MBSE	257
<i>Yuqian Huang (Hangzhou Normal University, China), Baokun Hu (Hangzhou Normal University, China), Wanwan Diao (Hangzhou Normal University, China), and Zhenghua Xia (Hangzhou Normal University, China)</i>	
Performance of LDPC and Turbo Coded Power Line Communication over Multipath Channel and Narrowband Noise	263
<i>Xiang Wang (China Gridcom Co.,Ltd, China), Haimin Hong (Shenzhen Smartchip Microelectronics Technology CO.,LTD, China), Kang Wang (Shenzhen Smartchip Microelectronics Technology CO.,LTD, China), Yujing Li (Xidian University, China), Qingyun Guo (Xidian University, China), Yuan Zhang (Xidian University, China), and Qinghai Yang (Xidian University, China)</i>	
Iterative Geometric Calibration Algorithm Based on Projection Point Correction	270
<i>Zeqin Hu (Sun Yat-sen University, China), Songfeng Li (Guangzhou Perception Vision Medical Technologies Co.,Ltd., China), Zefan Zhu (Guangzhou Perception Vision Medical Technologies Co.,Ltd., China), Jun Wei (Guangzhou Perception Vision Medical Technologies Co.,Ltd., China), and Yao Lu (Sun Yat-sen University, China)</i>	
Interference Alignment Close-form Solutions for Multiple-Input Multiple-Output Multiple-Antenna Systems	275
<i>Ju Cao (Beijing Jiaotong University, China) and Jie Ren (Beijing Jiaotong University, China)</i>	
The Design of Asymmetric Wireless Power Transmission Coils with Limited-Size	279
<i>Xiaoying Han (Dalian University of Technology, China), Weijie Dong (Dalian University of Technology, China), and Luding Cao (Dalian University of Technology, China)</i>	
Design Scheme of High Frequency Small Signal Amplifier	285
<i>Tianci Huang (Hainan University, China) and Xiaocan Song (Hainan University, China)</i>	
Research on E-Commerce User Interest Recommendation Method Based on TF-IDF Algorithm	291
<i>Yang Liu (Weifang Engineering Vocational College, China) and Qiuxiang Zhang (Weifang Engineering Vocational College, China)</i>	
An Automatic Warehouse Clearance Scheme for Bulk Cargo Unloading in Ports	296
<i>Pulin Li (Wuhan University of Technology, China), Wenhao Liu (Wuhan University of Technology, China), and Yuting Zheng (Wuhan University of Technology, China)</i>	
Research and Application of Air Quality Prediction Model Based on Urban Big Data	300
<i>Bofan Liu (Nanjing University of Information Science & Technology, China)</i>	
Design of Crop Growth Environment Monitoring System and Research on Crop Growth Environment Prediction Model	305
<i>Hao Chen (Nantong Institute of Technology, China), Yuwei Yang (Nantong Institute of Technology, China), and Jingxiong Yan (Nantong Institute of Technology, China)</i>	

Analysis of Optimization Method of Laboratory Management System Based on Data Processing and Intelligent Sensor Technology of the Internet of Things	309
<i>Ruobing Duan (Guangzhou Xinhua University, China), Hang Zeng (Guangzhou Xinhua University, China), Jinjie Cheng (Guangzhou Xinhua University, China), and Zhuoling Zheng (Guangzhou Xinhua University, China)</i>	
Application of Student Real Name Data Information Processing Based on Artificial Intelligence Technology in Network Security	314
<i>Wenyan Ye (Hohai University, China)</i>	
Design and Error Analysis of a Fast Phase Difference Detection Algorithm for Sinusoidal Characteristic Signal	318
<i>Di Li (eijing National Railway Research & Design Institute of Signal & Communication Group Co., Ltd., China), Yanwen Xu (Beijing National Railway Research & Design Institute of Signal & Communication Group Co., Ltd., China), Aitong Li (Beijing National Railway Research & Design Institute of Signal & Communication Group Co., Ltd., China), Xu Luo (Beijing National Railway Research & Design Institute of Signal & Communication Group Co., Ltd., China), Feng Ye (Beijing National Railway Research & Design Institute of Signal & Communication Group Co., Ltd., China), and Daiying Chen (Beijing National Railway Research & Design Institute of Signal & Communication Group Co., Ltd., China)</i>	
Design of Robot Intelligent Grasping System Based on Machine Vision	322
<i>Along Chen (Oulam Valve Technology Co.,Ltd, China) and Xiaolong Chen (Zhejiang University of Technology, China)</i>	
Multi-Dimensional Attention UNet with Variable Size Convolution Group for Road Segmentation in Remote Sensing Imagery	328
<i>Wenjie Zou (University of Science and Technology of China, China) and Dacang Feng (University of Science and Technology of China, China)</i>	
Research on Weight Optimization of Fluidlastic Isolator of Helicopter Main Reduction Based on Isight Platform	335
<i>Zhixiong Dai (China Helicopter Design and Research Institute, China), Feng Qian (China Helicopter Design and Research Institute, China), Chen Liu (China Helicopter Design and Research Institute, China), Xi Yuan (China Helicopter Design and Research Institute, China), Zhenkun Li (China Helicopter Design and Research Institute, China), and Zhizhuang Feng (China Helicopter Design and Research Institute, China)</i>	
Study on Dynamic Characteristics of Distributed Power Wing Structure with Electronically Controlled Propeller	341
<i>Fengnan Sun (China Helicopter Research and Development Institute, China), Siwen Wang (China Helicopter Research and Development Institute, China), Yan Zhu (China Helicopter Research and Development Institute, China), Xuyang Lin (China Helicopter Research and Development Institute, China), and Qiyong Cheng (China Helicopter Research and Development Institute, China)</i>	
Dual-Band Impedance Matching Transformer with Optimized Total Structure Lengths	347
<i>Xingbing Ma (Tianjin University of Technology and Education, China) and Zhanghuo Li (Tianjin Haochen Intelligent Technology Co., Ltd, China)</i>	

A Delay-Based Interest Packet Forwarding Strategy in Vehicular Named Data Networking	351
<i>Jie Qian (Tongji University, China), Yantao Yu (Tongji University, China), and Xing Chang (Tongji University, China)</i>	
Research on Smart Grid Behaviour Privacy Protection System Based on Spark	357
<i>Zheyuan Zhang (Engineering Zhengzhou University, China), Wang Zhang (Engineering Zhengzhou University, China), and Kangyi Zhang (Engineering Zhengzhou University, China)</i>	
Database Interface Application Based on ODBC Development	362
<i>Changbao Wang (National University of Defense Technology, China), Jiren Xu (National University of Defense Technology, China), Xiangyu Feng (Engineering Office, 32137 Troop, China), Weilu Wu (National University of Defense Technology, China), and Jiang Wang (National University of Defense Technology, China)</i>	
Research on Neural Network Hardware Scheme for Frequency Measurement and Direction Finding...	366
<i>Jiren Xu (National University of Defense Technology, China), Changbao Wang (National University of Defense Technology, China), Xiangyu Feng (Engineering Office, 32137 Troop, China), Jiang Wang (National University of Defense Technology, China), and Weilu Wu (National University of Defense Technology, China)</i>	
Simulation of Indoor Pseudolite Positioning Accuracy Based on EKF	370
<i>Tao Huang (CRRC Nanjing Puzhen Co., Ltd., China), Yunzhe Shen (Jiangsu University of Technology, China), Junxian Zhang (CRRC Nanjing Puzhen Co., Ltd., China), Wenjuan Gu (CRRC Nanjing Puzhen Co., Ltd., China), and Tianhu Wang (Jiangsu University of Technology, China)</i>	
Mitigation Methods of Short-Time Diurnal Magnetic Noise in Airborne Magnetic Survey	374
<i>Changping Du (Peking University, China), Chao Zhang (Peking University, China), Xiang Peng (Peking University, China), and Hong Guo (Peking University, China)</i>	
Machining of Automotive Ultra-Precision Parts and Detection and Control of Residual Stress on the Surface	379
<i>Xiaoting Kan (Changchun College of Electronic Technology, China), Zhe Liu (Changchun College of Electronic Technology, China), Qi Sun (Changchun College of Electronic Technology, China), Qianqian Wu (Changchun College of Electronic Technology, China), Meixuan Li (Changchun College of Electronic Technology, China), and Ziqi Xu (Changchun College of Electronic Technology, China)</i>	
Distributed Streaming Computing Mode Based on Fast Message Mechanism	383
<i>Fei Guan (Jiangsu Automation Research Institute, China)</i>	
Failure Prediction Mechanism of Disk Devices Based on LSTM	388
<i>Zhenpeng Xu (Jiangsu Automation Research Institute, China), Jinwei Ma (Jiangsu Automation Research Institute, China), and Yu Liu (Weifang University, China)</i>	

Substation Electric Energy Metering Terminal with the Function of Network Topology Recognition	392
<i>Yuan Gao (State Grid Information & Telecommunication Group Co., Ltd, China), Zhu Liu (State Grid Information & Telecommunication Group Co., Ltd, China), Xiangliang Meng (State Grid Information & Telecommunication Group Co., Ltd, China), Luchao Huang (State Grid Information & Telecommunication Group Co., Ltd, China), Yonggui Wang (State Grid Information & Telecommunication Group Co., Ltd, China), and Yunpeng Li (State Grid Information & Telecommunication Group Co., Ltd, China)</i>	
The Research of Detail Detection Based on the Deep Learning and Objector Tracking	397
<i>Yifan Song (Beijing No.80 High School, China)</i>	
Application Implementation of K-Means Algorithm Based on Wolf Pack Algorithm	402
<i>Xiaowei Xu (Jilin University, China) and Ying Li (Jilin University, China)</i>	
Comparative Analysis of CPI Index Intelligent Prediction Based on ARIMA & LSTM Model	405
<i>Jinhua Mei (Huazhong Agriculture University, China) and Mingyue Guo (Huazhong Agriculture University, China)</i>	
End-to-end Image Matting Based on Salient Portrait	410
<i>Fei Che (Beijing University of Chemical Technology, China) and Wei Hu (Beijing University of Chemical Technology, China)</i>	
Analysis of Comprehensive Algorithm Based on the Driving Range of Electric Vehicles in China	417
<i>Shijian Zhang (China Automotive Technology and Research Center Co., Ltd., China), Hexia Wu (China Automotive Technology and Research Center Co., Ltd., China), and Boya Zhou (China Automotive Technology and Research Center Co., Ltd., China)</i>	
Data-Driven Anomaly Detection and Early Warning Issues	423
<i>Chenxu Li (Shandong University of Finance and Economics, China), Aibo Xu (Shandong University of Finance and Economics, China), Ziyue Tian (Shandong University of Finance and Economics, China), and Chenlu Li (Shandong University of Finance and Economics, China)</i>	
Optimal Configuration Method of Fault Location Device in low Voltage Distribution Network Based on Participation	431
<i>Shuiping Wu (State Grid Zhejiang Electric Power Company, China), Zhan Xu (State Grid Zhejiang Electric Power Company, China), Zhixiang Zheng (State Grid Zhejiang Electric Power Company, China), Jianyong Cui (Wuhan University, China), and Yang Feng (State Grid Zhejiang Electric Power Company, China)</i>	
Long-Term and Short-Term Integrated Learning-Based Price Forecasting for Virtual Currency	438
<i>Zhaoxuan Jin (Tianjin University, China)</i>	
Research on Operation Load Distribution Mechanism and Optimization of Global IOT Intelligent Network in Power System Based on Edge Computing	443
<i>Jian Xiao (Guangdong Power Grid Co., Ltd, China), Wen Xiong (Guangdong Power Grid Co., Ltd, China), Yi Rao (Guangdong Power Grid Co., Ltd, China), Yanchun Cai (Guangdong Power Grid Co., Ltd, China), Renbo Wu (Guangdong Power Grid Co., Ltd, China), and Xinhui Zhong (Guangdong Power Grid Co., Ltd, China)</i>	

Design and Research of Intelligent Operation Inspection and Monitoring System of Substation Based on Image Recognition Technology	448
<i>Dongxu Li (Guangdong Power Grid Co., Ltd., China), Li Wang (Guangdong Power Grid Co., Ltd., China), Jinxuan Li (Guangdong Power Grid Co., Ltd., China), Shaoyu Xie (Guangdong Power Grid Co., Ltd., China), Long Wang (Guangdong Power Grid Co., Ltd., China), and Wenwang Xie (Guangdong Power Grid Co., Ltd., China)</i>	
Design and Research of Distribution Network Intelligent Gateway and Visual Monitoring Platform Based on Power Internet of Things	454
<i>Yongzhao Lao (Guangdong Power Grid Co., Ltd., China), Renbo Wu (Guangdong Power Grid Co., Ltd., China), Qiang Gao (Guangdong Power Grid Co., Ltd., China), Liye Wang (Guangdong Power Grid Co., Ltd., China), Dongxu Li (Guangdong Power Grid Co., Ltd., China), and Xianzhi Yang (Guangdong Power Grid Co., Ltd., China)</i>	
Visual Transmission and Analysis of Graphic Language Based on Image Processing Technology ...	462
<i>Wei Li (Changchun Humanities and Sciences College, China) and Chunli Wu (Changchun Humanities and Sciences College, China)</i>	
Research and Simulation of High Frame Rate Real-Time Image Tracking Technology Based on Compressed Sensing	466
<i>Yanna Zhang (Jiangxi Hangkong Vocational and Technical College, China)</i>	
Electronic Radar Signal Recognition Based on Wavelet Transform and Convolutional Neural Network	470
<i>Meilian Li (Anhui Sanlian Univeristy, China)</i>	
Reliability Modelling of Dynamic Random System Based on Petri Net	475
<i>Xuesong Li (Shandong University of Science and Technology, China)</i>	
Research on Optimization of Agricultural Products Foreign Trade Logistics Network Based on Heuristic Algorithm	480
<i>Yijun Xiang (Harbin University of Commerce, China) and Lian Ma (Harbin University of Commerce, China)</i>	
Research on Course Score Analysis Based on K-Means Clustering Algorithm	485
<i>Le Chen (Jiangxi University of Science and Technology, China), Meihua Li (Jiangxi University of Science and Technology, China), and Yiming Chen (Jiangxi University of Science and Technology, China)</i>	
A Multi-Agent Deep Reinforcement Learning Model of Internet-Related Markets Evolution	489
<i>Wentao Liu (Beijing University of Technology(BJUT), China) and Kun Han (Beihang University, China)</i>	
Importance Sampling-Based Missing Tag Identification Protocol for Large-Scale RFID System	494
<i>Hongtao Liang (Nanjing University of Aeronautics and Astronautics, China), Jiajing Wu (Nanjing University of Aeronautics and Astronautics, China), Hanlin Zhang (Nanjing University of Aeronautics and Astronautics, China), Xinyu Shao (Nanjing University of Aeronautics and Astronautics, China), and Lijuan Zhang (Nanjing University of Aeronautics and Astronautics, China)</i>	

Analysis of JPEG2000 Compression Quality of Optical Satellite Images	500
<i>Xiaqiong Yu (Satellite Application Center, China), Jinxian Zhao (Satellite Application Center, China), Tao Zhu (Satellite Application Center, China), Qiang Lan (Satellite Application Center, China), Lin Gao (Satellite Application Center, China), and Lingzhi Fan (Satellite Application Center, China)</i>	
Research and Implementation of the Fusion Method of the Real Image and Three Dimensional Geographical Features for VR	504
<i>Yu Xiang (Chongqing Cybercity Sci-tech Co., LTD, China), Xiaqiong Yu (Satellite Application Center, China), Zhi Huang (Chongqing Cybercity Sci-tech Co., LTD, China), and Yuanyuan Hua (Chongqing Cybercity Sci-tech Co., LTD, China)</i>	
Lightweight PM-YOLO Network Model for Moving Object Recognition on the Distribution Network Side	508
<i>Yu Zhang (State Grid Hebei Electric Power Co., Ltd., China), Bo Yuan (State Grid Hebei Electric Power Co., Ltd., China), Jun Zhang (State Grid NARI Nanjing Control System Co., Ltd., China), Zhengwei Li (Shanghai Electric Power University, China), Chengxin Pang (Shanghai Electric Power University, China), and Chenhang Dong (Shanghai Electric Power University, China)</i>	
Detection on Safety Helmet Wearing of Distribution Network Construction Based on YOLOv5-Btri Algorithm	517
<i>Yu Zhang (State Grid Hebei Electric Power Co., Ltd., China), Jinyue Shi (State Grid Hebei Electric Power Co., Ltd., China), Dongliang Wang (State Grid Hebei Electric Power Co., Ltd., China), Chengxin Pang (Shanghai Electric Power University, China), Zhuangzhuang Yang (Shanghai Electric Power University, China), Baizheng Wu (Shanghai Electric Power University, China), Yabing Xu (State Grid Hebei Electric Power Co., Ltd., China), and Weihua Du (State Grid Hebei Electric Power Co., Ltd., China)</i>	
Author Index	525